

# So What Is This Thing Called Electrostatics?

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## *Abstract—*

Alternatively, the charge distribution of the droplets was measured by replacing the Faraday cage filter with a charge mobility analyzer. After passing through the LDV probe volume, the charged droplets were passed through a horizontal electric field created by two parallel plates. Under this conditions, each droplet experiences two orthogonal fields: (1) gravitational field under which the droplet moves vertically downward with its terminal settling velocity depending upon its mass and (2) a transverse electric field causing it to move in the horizontal direction with its electrical terminal velocity depending upon its electrical charge  $q$ . Charge distribution measurements were enabled by discretizing each of the parallel plates into eight identical rectangular plates. The total charge accumulated on each of the 16 individual plates produced a proportional output voltage from a charge amplifier circuit, allowing for a charge histogram to be constructed. The experimental design, its application to the synthesis of nanostructured photoanodes for hydrogen generation, and the preliminary results are presented.